

## Montana Board of Oil and Gas Conservation Environmental Assessment

**Operator:** XTO Energy, Inc.  
**Well Name/Number:** Thiel #2 11X-12  
**Location:** NW NW Section 12 T22N R59E  
**County:** Richland, MT; **Field (or Wildcat)** Wildcat

### Air Quality

(possible concerns)

Long drilling time: No, 25-35 days drilling time.

Unusually deep drilling (high horsepower rig): A triple derrick rig, estimated 900-1000 HP to drill a single lateral Bakken Formation Horizontal Lateral, 21,387' MD/10,155' TVD.

Possible H2S gas production: Slight H2S content possible.

In/near Class I air quality area: No, not in a Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☒ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Existing pipeline for H2S gas and sweet gas in the area.

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### Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate casing string hole, oil based invert drilling fluids and brine water for the horizontal lateral. Surface casing hole will be drilled with freshwater and freshwater mud.

High water table: Yes high water table anticipated.

Surface drainage leads to live water: Yes, closest live water is the Yellowstone River, about 3/4 of a mile to the west and north from this location.

Water well contamination: None, surface hole will be drilled with freshwater and freshwater drilling fluids to 1,600', steel surface casing will be run and cemented to surface from 1600' to protect any ground and surface waters. Numerous water wells about 1/2 to 5/8 of a mile from this location. Depth of these domestic and stock water wells are from 30' and 1410'. Surface casing will be set well below the depth of these water wells. No concerns.

Porous/permeable soils: Yes, sandy alluvial soils.

Class I stream drainage: No, Class I stream drainage.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☒ Off-site disposal of liquids (in approved facility)

☒ Other: Offsite disposal of oil based cuttings and solids.

Comments: 1600' of surface casing is enough surface casing to cover Base Fox Hills Formation.

Surface hole will be drilled with freshwater and freshwater drilling muds to 1600'. Steel surface casing will be run to 1600' and cemented to surface. Freshwater drill cuttings will be disposed of onsite in an earthen pit. Oilbased invert drilling fluids will be recycled. Drill cuttings will be disposed of offsite. After the well has been completed, completions fluids will go to a commercial Class II disposal. No concerns.

## Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None, anticipated.

High erosion potential: No high erosion potential, small cut, 0.2' and small fill, up to 3.9', required.

Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Yes, well site is very large, 550'X300' to accommodate 2 wells and a common tank battery on site.

Damage to improvements: Slight, surface use is irrigated cropland.

Conflict with existing land use/values: Slight.

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction

Activity, under ARM 17.30.1102(28).

Comments: Access will be over existing county road, #122 and well access road. A new access road will be built into this location off county road #122, about 0.7 miles. Oil based drilling fluids will be recycled.

Completion fluids will be hauled to a Class II commercial disposal. Freshwater drill cuttings will be buried on site pit. No concerns.

## Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences about 1/2 of a mile to the northwest, 5/8 of a mile to the west southwest and 1 mile to the northeast from this location.

Possibility of H2S: Slight

Size of rig/length of drilling time: Triple derrick drilling rig, 25 to 35 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems.

## Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: None, cultivated field.

Conflict with game range/refuge management: No, no game range/refuge in the area.

Threatened or endangered Species: Threatened or endangered species identified by USFWS in Richland County are the Pallid Sturgeon, Whooping Crane, Interior Lease Tern and Piping Plover. Candidate species is the Greater Sage Grouse.

Mitigation:

☐ Avoidance (topographic tolerance/exception)

☐ Other agency review (DFWP, federal agencies, DSL)

\_\_\_ Screening/fencing of pits, drillsite

\_\_\_ Other: \_\_\_\_\_

Comments: Private irrigated cultivated surface lands. NH Tracker website indicates 5 species of concern, but this is an irrigated cultivated field, this development well will be on an existing an well pad and should not impact any of these species of concern. No concerns.

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### **Historical/Cultural/Paleontological**

(possible concerns)

Proximity to known sites None identified.

Mitigation

\_\_\_ avoidance (topographic tolerance, location exception)

\_\_\_ other agency review (SHPO, DSL, federal agencies)

\_\_\_ Other: \_\_\_\_\_

Comments: Private irrigated cultivated surface lands. No concerns.

### **Social/Economic**

(possible concerns)

\_\_\_ Substantial effect on tax base

\_\_\_ Create demand for new governmental services

\_\_\_ Population increase or relocation

Comments: Horizontal Bakken Formation oil well in a 1280 acre spacing unit. A development well in an existing spacing unit. No concerns.

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### **Remarks or Special Concerns for this site**

Single lateral Bakken Formation development horizontal well 21,387'MD/10,155'TVD.

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### **Summary: Evaluation of Impacts and Cumulative effects**

No long term impacts expected. Some short term impacts will occur.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki

(title:) Chief Field Inspector

Date: October 26, 2010

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Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)

Richland County water wells

(subject discussed)

October 26, 2010

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(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA  
COUNTIES, Richland County

October 26, 2010

(date)

Montana Natural Heritage Program Website

(Name and Agency)

Heritage State Rank= S1, S2, S3

(subject discussed)

October 26, 2010

(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_